GARDEN AND FOREST.

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Municipal Playgrounds.

DURING the last twenty-five years the movement of population has been from the country to the city, and the rapidity with which American and European cities have increased in size during this period is marvelous. This movement has been even greater in Europe than it is in America, although we are apt to regard the growth of some of our western cities as unparalleled; and in Europe, at least, the effort to improve the condition of urban populations has kept pace with their growth. The last ten or fifteen years have witnessed substantial reforms, too, in the management of American cities, and if these efforts toward reform have not always been successful their failure can be largely traced to political conditions rather than to want of zeal and intelligence in the reformers.

In modern municipal equipment much provision is made for the instruction and amusement of children, and in most modernized European cities large sums of money have been expended in procuring open spaces for them in districts of congested population. Mr. Albert Shaw, in his *Municipal Government in Great Britain*, in describing the methods and results of modern London management, points out as remarkable "the manner in which the committee on parks has made provision for the athletic culture of young Londoners of both sexes, and for their natural and healthful devotion to outdoor sports. Cricket-grounds and football-grounds, literally by the thousand, have been laid out, besides many hundreds of tennis-courts, and various golf and hockey grounds. The council committee has not merely provided these opportunities for recreation, but it has gone so far as sedulously to supervise the use of the cricket grounds and other playgrounds, to the end that the largest possible number of young people may get the best attainable results of pleasure and physical development from their use. The council has imitated the Continental cities in making provision for music in the parks, and its numerous subsidized bands are giving more than a thousand open-air concerts each season. It has succeeded in making the parks so attractive that several million persons each year are now deriving pleasure either from participation in the games, attendance at the concerts or in other similar ways. The preservation of several very large outlying tracts of wooded park land, together with the opening up of numerous larger and smaller public pleasure-grounds in every district of the huge metropolis, has now made it certain that the growth of London can never shut off the children of future generations from access to the grass and trees and open-air sports"; and from his work on the *Municipal Governments of Continental Europe*, it may be learned that in modern Paris and Berlin, Vienna, Hamburg and many other German cities, abundant provision has been made for the recreation and refreshment of all classes of people in numerous and carefully located small parks, squares, playgrounds and other open spaces.

In this country, where much has been done in the last forty years in providing our cities with large rural parks, the establishment of playgrounds in connection with urban schoolhouses, and small parks or playgrounds in congested districts, has been singularly neglected. In this city, however, two admirable small parks have recently been opened in the most crowded parts of the East Side, the land for others has been taken, and New York has legislative authority to expend a million dollars a year for this purpose. Two completed East Side parks at Mulberry Bend and Corlear's Hook are, however, small parks and not true playgrounds—real oases in a veritable desert of squalor, with fresh green grass and trees and flowering shrubs. Green grass is always beautiful, and in the midst of a tenement-house district it is doubly refreshing; but children cannot play on turf without destroying it, and if these parks are to be kept fresh and green the edict to keep off the grass must be sternly enforced; and it is a question worth the attention, perhaps, of municipal reformers whether open spaces in such districts would not better supply the public needs if a large part of their surface was covered with gravel or asphalt on which children could play freely, the grass and trees being confined to a narrow marginal border.

What has already been done in this city in providing open spaces is, of course, still very inadequate, but it is more than has been accomplished in any other large American city. Brooklyn has a noble playground of forty acres of beautiful level turf beyond Prospect Park, but it is still remote from the centres of greatest population, and little has been done to secure open spaces in the heart of the city or to provide for them on its rapidly advancing borders. This is true, too, of Philadelphia, Chicago, Baltimore, St. Louis and San Francisco. These cities are now admirably provided with large parks and with grass-covered squares, but no adequate provision has been made in any of them for convenient playgrounds for the children of the poor. Boston and its suburbs, judging by the ratio of park area to population, is the best parked community in the world, but in the great park system of the New England capital little attention has been paid to the question of playgrounds. The city itself has spent in a comparatively short time $12,000,000 on the city parks. It has one admirable large playground in Franklin Field, situated, however, in what is now a remote and comparatively inaccessible district, beyond walking distance for a majority of the school-children of the city, and between the Common, now too small and too much used to serve as a playground, and Franklin Park, a distance of about seven miles through the parks, no provision whatever has been made for playgrounds. This serious objection to the Boston park system may, however, still be remedied, and Mayor Quincy, who is alive to the importance of this subject, will, it is to be hoped, make his administration memorable by inaugurating a general system of conveniently located playgrounds and open spaces. The little town of Brookline, which is adjacent to Boston on the south-west, has already set a good example by placing $100,000 in the hands of its Park Commission to secure land in the less thickly populated parts of the town for the benefit of future generations of children, the more densely populated districts

being already provided with three large and excellent playgrounds adjacent to some of the principal schoolhouses in the town.

Other cities and towns may well follow this example and secure now, while land is comparatively cheap, an adequate provision of open spaces for the future. All our cities, large and small, will increase rapidly in population, and land within their borders, or in their immediate neighborhood, adapted to the purposes of parks and playgrounds will never be cheaper than it is now. A wise policy will make such provision in advance of the actual necessities of the community, and in laying out the new districts of all cities land should be liberally secured for these purposes.

The growth of cities at the expense of the rural population will make the supply of country-bred men and women, who in the past have been the mainstay of the nation, smaller and more difficult to obtain; and the men and, what is even more important, the mothers of the men who are going to carry on the American experiment of self-government will be city boys and girls. Too much, therefore, cannot be done to make them healthy, clean and well instructed, and unless they are supplied with fresh air and with opportunities to play in freedom the games which belong to their age their chances of becoming useful citizens are not promising.

Dr. Augustine Henry, writing from Mengtse, Yu-nan, contributes an interesting and important paper to the *American Druggist and Pharmaceutical Record* on Chinese Soap-trees. From very early times the fruits of these trees have been used by the Chinese for washing purposes, and, in spite of the introduction of alkaline soaps from England and Germany, they are still esteemed for washing the hair and cleaning delicate fabrics like silk. Little is known of the chemistry of these fruits, although it may be assumed that their peculiar properties are due to the presence of saponin. Chinese Soap-trees belong to two natural families, the Sapindaceæ and the Leguminosæ. The best known, perhaps, of these plants is Sapindus Mukorossi, a Chinese and Formosa tree cultivated in Japanese gardens and in those of north-west India and Bengal. Dr. Henry tells us that this tree is common in the southern provinces of China and in the islands of Hainan and Formosa. Further north it occurs in Chekiang and Hupeh, although it is rare in these provinces. The fruits of all the trees of this genus have the same properties, two of them growing spontaneously in the United States, one on the keys of southern Florida, while the other is widely distributed along the southern boundary of the United States from south-western Missouri southward. The fruit of Pancovia Delavayi resembles that of Sapindus, and is also used as soap, according to the French missionary Delavay, by whom it was found in Yu-nan a few years ago. The most esteemed of the Chinese fruit-trees, however, is Gymnocladus Chinensis, a near relative of our own Kentucky Coffee-tree. This tree grows in central China in the provinces of Hupeh, Szechwan and Anhui, Chekiang and Kiangsi. The Chinese name, Fei tsao, meaning fat Gleditschia, refers to the fact that the pods of this tree are much thicker than those of the true Gleditschias.

Eastern Asia must be considered the home of this last genus, eleven species or forms being known in the forests of that region, while in North America there are only two. The pods are employed in Asia for washing, and those of Gleditschia officinalis are used as a drug by the Chinese. As Dr. Henry points out, there is at present considerable confusion regarding the different species of Asiatic Gleditschias, and a monograph of the whole genus is very much to be desired.

The Lungngan-tree (Nephelium Longana) occurs wild in Formosa and is cultivated in that island and in southern China for its edible fruit. The seeds are ground into powder and are said to be used for washing the hair. Saponin also occurs in the Chinese Tea-oil tree, Camellia Sasanqua. This plant is cultivated in China for its seeds, which yield the so-called tea-oil. The seeds contain about ten per cent. of saponin, and the refuse after the oil is extracted is known as tea-seed cake, and this refuse is used by the Chinese for washing, and to poison fish. The saponin stupefies fish, which rise to the surface and are then easily captured. It is interesting to note that "a decoction of the refuse poured on a grass lawn causes the earthworms to come to the surface, and it is used consequently to eradicate earthworms from soil in which plants in pots are grown or to obtain speedily bait for angling."

Forest Conditions in the Southern Sierras.

No more magnificent forests are to be found in the Sierra Nevada mountains than in the district lying to the west and south-west of Mount Whitney, and including the headwaters of the Kern, Tule and Kaweah rivers; yet, although it is a region of beautiful and varied scenery, easily reached and adjoining the highest peaks of the range, it is one but little known and seldom visited except by the people of the immediate vicinity in the valley below and some adventurous climbers of Mount Whitney. In fact, many intelligent Californians are still unaware even of the existence of the Sequoia National Park which is under military protection, and know nothing of the Sierra Forest Reserve, which extends from the Yosemite National Park southward over two hundred miles, with an average breadth of, perhaps, fifty miles to Mount Breckenridge, in Kern County, and which is not under protection of any kind at present, the lands within it still belonging to the Government, having merely been withdrawn from sale or entry. Only two wagon-roads penetrate this country, and these only for a short distance—one from Porterville up the Middle Fork of the Tule to some sawmills and the "summer shanty town" of Mountain Home, at an elevation of about 6,000 feet; the other from Visalia up the East Fork of the Kaweah through the Sequoia Park to Mineral King, a deserted mining camp, at an altitude of 7,700 feet, the usual headquarters of the company of United States cavalry which patrols the park during the summer.

On entering this region from the plains of the great valley a distance of about twenty-five miles is usually traversed through foothills and lower mountains before reaching the coniferous forests. The change in vegetation is apt to be abrupt from the White Oaks and Scrub Oak, the Manzanita and Ceanothus, to the immense shafts of the Yellow and Sugar Pines, the Incense Cedars, and a little farther on the red boles of the Sequoias. Here the undergrowth is now almost wanting, consisting, for the most part, of scattering clusters of young conifers, with the intervening spaces usually quite bare, except where in more protected or less shaded stretches the lowly, odorous Squaw-mat, Chamæbatia foliolosa, covers the pine-needles with its lawn-like green. Higher up the forest becomes denser, the White, and afterward the Red Firs, as Abies concolor and A. magnifica are locally termed, begin to predominate, and the wet meadows on the higher altitudes are often held in exclusive possession by the white stems of the Tamaracks (Pinus Murrayana).

Aside from the so-called Giant Forest in the park, near the Marble Fork of the Kaweah, there are scattered throughout this district many fine groves of Sequoia Wellingtonia upon the upper waters of the Tule and Kaweah, each extending over several hundred acres, and often for two or three miles, mingled with other trees, and each containing many hundreds of Redwoods, as the Sequoias are here called. Professor Dudley speaks of this region as "the real home of the species." In spots sheltered from fire and grazing, young trees are found in considerable numbers of a size from two to ten feet high, while trees of a size intermediate between these and the smaller giants, six or eight feet in diameter, are very rare.

Scattered throughout the district at altitudes between 5,000 and 8,000 feet is the Sugar Pine, first among its

neighbors in usefulness as well as beauty, and second only to the Sequoias in size. Too much can never be said of the varied and picturesque individuality of this beautiful tree, which Douglas, upon discovering it in 1826, declared to be "the most princely of the genus; perhaps, even the grandest specimen of vegetation known." Its most striking characteristic is in its slender, straggling branches thrown out irregularly from the upper trunk and terminated by a single, long, heavy cone pendent from the tip, shooting out like a skyrocket just ready to burst.

On account of the lack of transportation facilities, the amount of lumbering so far done in these mountains is small, and it seems that forest fires of any great extent have not ravaged the forests here for many years, though the blackened bark of the older trees testifies plainly as to the manner in which the former undergrowth was done away with. But, while fortunate in these respects, this has been the most thoroughly overrun with sheep of any section of the Sierra, over 200,000 head being driven annually to the headwaters of the Kern and Tule rivers. When the sheep were first brought in here, some thirty years ago, there was a dense undergrowth of young trees, grass and shrubs, while in the mountain meadows the feed was as high as a horse's back, say the old mountaineers. To-day upon the Upper Kern and Little Kern there are miles after miles of country left utterly bare; from the bole of one great conifer to another there is scarcely even a pine-needle to cover the coarse, gray, granite sand. To start a forest fire would be absolutely impossible; there is nothing left to burn. Like the Roman general who made the enemy's country a desert and called it "peace," the sheep-men now claim that the sheep benefit the forests by keeping down the undergrowth, thereby bringing security from forest fires. Others say that inasmuch as there will be nothing left to feed upon in a few years more, the sheep will work their own expulsion.

In the late spring, before the arrival of the sheep, many places can be seen where the young Pines are covering the ground like grass on a lawn, and where squirrels have "cached" their winter supply of seeds little tufts of dozens of tiny trees spring up. A few weeks later not a sign of a tree is to be found, and little holes show where the seed-beds of the squirrels have been dug up by the feet of the sheep to obtain the last remnants of the kernels.

On the first establishment of the park and its patrolling by the cavalry there was a feeling of bitter resentment against the new policy by all connected, even indirectly, with the sheep industry. Some herders, aware of the absence of a legal penalty for trespassing, thought well to ignore the presence of the soldiers, and allowed their sheep to graze within the park in spite of warning. They discovered their mistake when, after being escorted a couple of days' journey across the park, they were ejected with the admonition not to be caught again within it, their sheep, meantime, having been driven out at the nearest point on the boundary to roam at liberty over the mountains until their owners had made their way back around the borders and gathered together the remnant. At present, however, the protection of the forests is acquiesced in without comment, and the further extension of the protected area is looked upon by the sheep owners as a thing to be expected at any time, and already taken into account in their plans for the future. A year or two ago notices were posted forbidding the pasturing of sheep in the reserve, and, though most of them were at once torn down, there was some disposition to obey them by many of the American owners, but, as no effort was made by the Government to enforce the regulation, it soon became a dead letter. In fact, it is probable that the closing of the entire reserve would be looked upon favorably by a large part of the American sheep-men, partly under the expectation that the foreigners owning no land would thereby be forced out of the business, and partly, no doubt, in the case of those owning patented lands within the boundaries of the reserve, with the thought that the Government could not in justice forbid them access to property it had already sold to them, nor without great expense in the way of fencing or police could it enforce a strict observance of the boundaries of the land sold. The large amount of this land disposed of by the Government before the formation of the reserve, and now within its limits, will be one of the most difficult problems to solve in any action hereafter to be taken for the protection of these forests.

A great part of the sheep pastured on the public lands belong to foreigners, chiefly French and Spanish, of Provençal or Basque origin, who, owning no land and paying no taxes, are most thoroughly despised by their American neighbors. They are, nevertheless, an industrious, frugal and hardy race, willing for the sake of a mere subsistence to face dangers and hardships which few Americans would care to endure for a like recompense. Accustomed from childhood and through generations of ancestors to lead their flocks every summer into the upper Alps and Pyrenees, they penetrate every nook and corner of the mountains where feed is to be found, a few days' pasturage being a sufficient inducement for them to take their charges over paths difficult and dangerous even for men, where the sure-footed donkeys with their supplies may, perhaps, have to be let down or pulled up by ropes, and where the sheep can only be driven by the most expert management and knowledge of their habits. The most adventurous mountain climbers of the Sierra Club, in their explorations of the fastnesses of the high Sierra, find few spots so remote or inaccessible as not to show traces of their having been already visited by these indefatigable peasants.

Aside from these few exceptions then, it may be said that the sentiment of the people of the district is now almost unanimous in favor of increased Government control. The inhabitants of the valleys below, who use these waters for irrigation, understand the necessity of preserving the forest-cover on the mountains, and as great numbers of them come up toward the sources of the stream each summer to escape the intense heat of the plains, they become acquainted with the conditions and the denudation at present prevailing. The ice has been broken. An example has been placed before them in the protected park, where the improved appearance of vegetation is apparent to the most inattentive traveler as soon as he passes the boundary. Public feeling seems to be ready for another step. The first should certainly be to enlarge the area from which trespassers are excluded, which could be done by the Executive without the necessity of legislative action. Captain Parker, acting superintendent of the park, says, in his report for 1894:

> I respectfully renew my recommendations of last year on the subject of extending the park so as to take in that portion of the forest reserve lying east of Sequoia and General Grant parks. This would include a most picturesque and grand portion of the Kings River Cañon, and also the Kern River country, a section rich in scenic grandeur and beauty, which is visited each year by great numbers of tourists. This extension would make possible the employment of troops, and thus rid the country of sheep, a result which seems impossible at present to hope for in any other way. It would take in the source of the South Fork of the Kings River, of the Kern River, and includes more of the sources of the Kaweah River than does the park as at present laid out. It would simplify the sheep question by interposing to the migrating sheep herds a barrier stretching entirely across the mountain country, thus restricting their operations. It would be hailed with delight by the tourists, fishermen and sportsmen, who now find this country barren, desolate and devoid of feed for their riding and pack animals. Such an extension has its precedent in the enlargement of the Yellowstone Park, April 14th, 1891, an order of the President including therein a portion of the forest reserve adjoining.

As to the further future with respect to some thorough system of forestry practice for this reason, it can be said that, thanks to the initiative of a few far-seeing men, with the aid of GARDEN AND FOREST and some other journals, the subject is no longer a mere theme for academic discussion, as it was until of late, but is receiving local attention and

intelligent observation from those most nearly concerned. The matter is one frequently and seriously discussed in all its bearings, and there is scarcely an intelligent mountaineer in the district who is not ready with some more or less pertinent and practical suggestions. Whenever the Government is prepared to put in operation a well-considered scheme for the proper management and utilization of the varied resources of these mountains, with due regard to their use as a pleasure resort, game preserves and timber-producing forests, it will undoubtedly receive the hearty support and coöperation of a large majority of the people most directly interested.

Santa Barbara, Calif. *Frank M. Gallaher.*

Shall We have a Bureau of Plant Registration?

THE question of establishing a bureau for the registration of plants, in connection with the present Division of Pomology, was brought before the Section of Botany and Horticulture of the Association of American Agricultural Colleges and Experiment Stations, by Professor L. C. Corbett, of the West Virginia University. After a careful consideration of the matter, the Section appointed a committee to report upon the feasibility of the scheme, and to suggest the outline of a plan to be presented to Congress at an early date. The committee consists of L. C. Corbett, Morgantown, West Virginia, chairman; W. A. Taylor, United States Department of Agriculture, Washington, District of Columbia; Professor L. H. Bailey, Ithaca, New York; F. S. Earle, Auburn, Alabama, and C. H. Shinn, Berkeley, California.

The idea is to have some one place in the United States where all plants placed upon the market can be officially registered, numbered, and a description, together with specimens of the bloom, seed, foliage and fruit, placed on record. When it is not practicable to preserve the original, colored casts are to be prepared, as in the case of citrus, drupaceous and pomaceous fruit, as well as vegetables. In all cases where plants are sent for registration, specimens of flowers, foliage, fruit, root, tuber or seed must accompany the application. All vegetables must be accompanied by a given amount of seed (to be determined) to be preserved for purposes of noting the duration of cultural varieties, the influence of climate during any series of years, or in any locality. A further purpose of the seed shall be to grow plants for purposes of identifying the sort.

Ends Sought.—(1) To discourage the duplication of names, and the renaming of old sorts for commercial purposes. (2) To form a national herbarium of economic plants, which shall be made up largely from type specimens. (3) To simplify the matter of nomenclature. (4) To aid the student of varieties as well as of variation of plants under culture. (5) To secure to the originator of a truly valuable variety some reward for his labor, the same as is now accorded the inventor.

The incorporation of such a clause (No. 5) will, I am sure, secure the hearty coöperation of all plant-breeders, nurserymen and seedsmen, and this coöperation we must have in order to advance the scientific ends sought.

It is further proposed that this central bureau be made a part and parcel of the present Division of Pomology of the United States Department of Agriculture. A very valuable nucleus for the beginning of such work is had in the fruit models now in the museum of that department. Every one interested in this matter is invited to formulate his ideas on the subject and send them to some member of the committee, who will put them in such form that a bill may be drafted at an early date and presented before Congress. The reason for selecting a committee whose members are so widely scattered is to find out as fully as practicable the needs and wishes of different sections of the United States. The hearty coöperation of all persons interested in this subject is confidently expected.

Agricult'l Experim't Station, Morgantown, W. Va. *L. C. Corbett.*

New or Little-known Plants.

Dog-tooth Violets on Mount Ranier.

WE shall take occasion to speak again of the beauty of the alpine vegetation near the timber-line on Mount Ranier, in Washington, and we have already published a view of a mass of the beautiful alpine Erigeron salsuginosus growing on the slopes of this mountain (see vol. ii., page 319). The great floral display of Ranier, however, is made by two species of Dog-tooth Violet, the yellow-flowered Erythronium giganteum and the white-flowered Erythronium albiflorum. These two plants grow in the greatest profusion among the grasses on the slopes of this mountain at an elevation of about 6,000 feet, attaining a size and luxuriance which we have not noticed in any other part of the country. In Paradise Valley, near the foot of the Nisgully Glacier, they cover broad stretches, and their abundance is so great that the white and yellow nodding flowers nearly hide the turf above which they are raised on slender stems. When the hot sun of July and early August has reduced the snow-banks to the depth of about an inch the plants push up through the snow, each one making for itself a little open circular space; in two or three days more, or when the last snow has gone, the plants are in full flower, and at the end of another week, so short is the season of vegetation at this high altitude and so rapid the development of plants, the flowers have gone and the fruit has attained nearly its full size.

Some slight idea of the abundance of these plants on Mount Ranier may be obtained from our illustration on page 505 of this issue, made from a photograph taken by Mr. Curtis, of Seattle. No picture, however, and no words of which we have command can give any idea of the delicacy, grace and beauty of these plants, which for a few long summer days display their loveliness on these wind-swept alpine slopes.

Aster longifolius, Lam.

UNTIL a few years ago this name was applied by American botanists to one of the commonest and most polymorphous species of the eastern seaboard. But in 1882, after a critical study of type specimens in the European herbaria, Dr. Gray showed* that the plant which had been passing as Aster longifolius was really the Linnæan A. Novi-Belgii, and, on the other hand, that Lamarck's A. longifolius was a northern species little known to American collectors; and although the species is defined in the *Synoptical Flora*, it is still almost as little known as before.

This obscurity is due, no doubt, to the fact that outside British America the plant occurs only along the northern borders of the United States, and possibly in the Rocky Mountains. Apparently not rare through Canada from the Gulf of St. Lawrence westward to the Saskatchewan and Great Slave Lake, the species extends southward to Halifax, the mouth of the Kennebec and the White Mountains in the east, and to Lake Superior and northern Minnesota farther west. Plants from Montana and Colorado have been referred here, but the specimens at hand (Scribner's No. 94 from Teton River, Montana, and L. F. Ward's No. 1 from Citadel Butte, Montana) seem to have little affinity with the eastern plant.†

Like the related species of Aster, A. longifolius presents a broad range of forms. As it occurs along the Maine coast it is often treacherously near A. Novi-Belgii. But farther inland, along the St. John and Aroostook Rivers, where as yet no forms of A. Novi-Belgii have been detected, the plant appears in its more typical form. Yet there one is puzzled by intermediates, for A. longifolius has a strong

* *Proc. Amer. Acad.*, xvii., 167, 169.

† Since the above was written I have seen a specimen which is clearly Aster longifolius, collected by Dr. Geo. G. Kennedy in the Blue Hills, West Quincy, Mass.

tendency to intergrade with both A. paniculatus and A. junceus.

As the species ordinarily appears it is very slender and from one to four feet in height. The stems are quite glabrous, or pass by gradual transitions to a densely white-villous form, the var. villicaulis, Gray. The leaves are thin and smooth, or rarely thickish and somewhat scabrous on the margins. They are from three to eight inches long, varying from lanceolate to linear-lanceolate, usually attenuate to the tip, and either tapering gradually to a narrow sessile base or with a slightly auriculate-clasping insertion. Generally the margins are nearly or quite entire, but occasionally they are sharply serrate.

The cymose-paniculate inflorescence is leafy, the branches being either short with one or two heads, or elongated and bearing several heads. The heads, as a rule, are rather smaller than in Aster Novi-Belgii, though in some few-flowered specimens they are fully one and a half inches across. The involucre is four or five lines high, composed of loosely one or two seriate approximately equal linear bracts with acute or long-acuminate herbaceous tips, and frequently there is an outer series of lanceolate foliaceous bracts. The rays are from three to seven lines long, varying in color from pure white through pink to deep blue.

As already suggested, this plant tends to intergrade with at least three species, Aster Novi-Belgii, A. paniculatus and A. junceus. From all these species A. longifolius may be distinguished by its involucre of loose and essentially equal bracts. Forms with the outer bracts foliaceous, however, strongly simulate A. Novi-Belgii. These may generally be distinguished by the fact that in A. Novi-Belgii the inner bracts are of unequal length and somewhat squarrose. Tall forms of A. longifolius without foliaceous bracts may sometimes be confused with A. paniculatus, but the heads of A. longifolius are usually larger, and in pure A. paniculatus the bracts of the involucre are shorter and imbricated. From A. junceus, too, the plant may best be distinguished by the fact that in A. junceus the involucral bracts are definitely of two or three lengths, as well as by the lower habit, and thicker usually narrower and strongly scabrous leaves of the latter species.

The specimen from which Mr. Faxon has made the drawing on page 507 was collected at Fort Fairfield, Maine, where, in the thickets and on the gravelly banks of the Aroostook River, the plant appears in great abundance.

Gray Herbarium, Cambridge, Mass. *Merritt L. Fernald.*

Fig. 72.—Dog-tooth Violets on Mount Ranier.—See page 504.

Cultural Department.

Mexican Lælias.

LÆLIA ANCEPS and its varieties, L. autumnalis, L. albida, L. Gouldiana, and other forms that bloom during midwinter are particularly useful in this dull season. The flowers of L. anceps alone, if a number of them are grown, make an effective display, especially if a few of the superb white forms are used with the typical form. None of these flowers are of much value for cutting. The stems do not readily absorb water and they fade soon. The flowering plants are, however, useful for decorative purposes, and the flowers last in good condition as long as six weeks in a moderately cool house free from excessive moisture.

For various reasons these Mexican Orchids have a rather

poor reputation among cultivators, but there is no difficulty that may not easily be overcome with rational treatment. It is quite possible that all the Lælias named would thrive better out-of-doors for four months each year, beginning with June, if a light airy structure is not at hand for them. We have for several years had plants of the white form of L. anceps that have steadily refused to flower when grown in the greenhouse, but when placed in partial shade with Cypripedium insigne during the past summer they improved in strength to such an extent that some are now about to bloom, and all show a decided increase of vigor. They were placed in a position where the sun shone on them until about 11 o'clock, when large Elms afforded shade during the hottest portion of the day. We tried this plan because the new growths were not stiff enough to hold the leaves rigid, and they had a tendency to lay over to one side to their permanent disfigurement if left alone. Sometimes Cattleyas show these symptoms, especially those of the two-leaved section, such as C. Leopoldii and C. Bowringiana, and there is no surer sign of too much heat and not enough air; perhaps not during the day, for at that time of year the temperature is beyond control, but at night enough air is not allowed to circulate among the plants. As we could not provide a cooler structure with the proper amount of light, we put the plants outdoors. The leaves were tied up to maintain a normal position; they at once began to stiffen, and the results were all that could be desired.

It is well known that there are several types of white Lælia anceps. Some flower freely, as L. Hilliana and L. stella, but many need to be grown very strong to induce them to bloom, as L. Sanderiana. There is no doubt, however, that all will flower each year with proper care, which includes plenty of water. Mexican Lælias enjoy a spraying overhead once a day, and even more often on very hot days, provided the material in which they are grown is suitable and in a wholesome and porous condition. Nothing but good sound Osmunda-root should be used to grow them in, with no addition of moss, as this will decay and make the whole inert. A very little moss might be used as an index to the state of the material in winter, but not enough to blend it through the whole potting material, as is generally done.

It is sometimes advised to keep these plants dry so as to rest them after flowering, but this is a great error. They need recuperation, it is true, but nothing effects this so well as moisture. After blooming, the bulbs are shriveled from the strain upon them, and a fascicle of new roots is pushed from the base of the flowering bulb, which seeks more food in the way of new material and moisture to make good the loss. This is an infallible guide to the right time to repot any Orchid, and it should be rather anticipated than otherwise, for delay will injure the young tender tips of these new roots. As soon as the flowers are cut from Mexican Lælias the roots should, therefore, be examined, and if repotting is required this should be done at once. Only a little compost should be used, rather than too much, owing to the great quantity of water that may be necessary in hot weather.

Lælia autumnalis will now be going out of flower. Our plants have already been taken out of the old receptacles and placed in new ones, with fresh material. If they are to be grown suspended from the roof of the greenhouse it is best to use charcoal for drainage, as it is much lighter in weight and stores moisture well. L. Arnoldiana, L. Gouldiana and L. anceps will need attention soon, as they each go out of bloom.

Lælia albida is not usually a success grown in pots or baskets. The plants, whether newly imported or established pieces, will grow best if tied with copper wire to pieces of Fern-root sawed out flat to the desired size and about two inches thick. The pieces should be wired on the flat side and suspended at the ends of the house. This has proved a good way to grow many of the species that have been most intractable under other methods.

Cattleya citrina is also a Mexican plant and is short-lived in cultivation. Some inferior dried scraps came into our possession some time since and they were also wired to a block of fern fibre. We did not expect them to thrive, but some have flowered; all are growing stronger and most will bloom at the next flowering period. This Cattleya is unique in being the only species found in Mexico, in its yellow color and in its persistent habit of growing downward. These features, added to its delicious fragrance, make it one of the plants that cultivators are anxious to grow well. Growing it on a block is, perhaps, not so generally practiced as circumstances would seem to warrant.

Cattleya Walkeriana, though of Brazilian origin, may well be classed with the foregoing, owing to its habit of winter blooming, its dwarf, almost round, bulbs, and bad reputation from a cultural standpoint. We had a dozen scraps once, newly imported and rather unpromising in appearance; these were pegged on a block of Fern-root and suspended near the glass. There is great improvement in the size of the bulbs made here over those grown in their home. The plants flower freely and are a pleasing sight now, when some have three and four flowers to a stem. Grown in this way it is a decidedly handsome plant.

South Lancaster, Mass. *E. O. Orpet.*

Care of Frames in Winter.

NO gardening establishment is complete without a number of cold frames, and in the spring season there are seldom enough for the requirements of a garden. We use all our frames during the winter season, and by careful attention to ventilation, picking over the plants, covering securely on cold nights, removal of snow from the protecting shutters and other details, the returns are satisfactory even during the dead of winter. We find that sashes 6½×4 feet are a convenient size, glazed with 9×13 double thick glass. We prefer Singapore fibre mats to straw ones. They are fully as warm, mouse-proof, not liable to rot if laid by damp, more durable, and they leave no litter on the sashes. With ordinary care they should last at least six years; some in use here for nearly five years are but little the worse for wear. Match-board shutters seven-eighths of an inch thick are placed over the mats; if iron handles are screwed on the ends of these shutters (as well as on the sashes), they are much easier to move about. A good coat of paint on the upper surface improves their appearance and is a preservative.

For such plants as Double Daisies, Polyanthus, Pansies and Wallflowers, which are not reliably hardy here, we do not use mats or shutters at all. As soon as the beds are frozen firm we fill below the sashes with perfectly dry leaves, which are removed on the first coming of spring weather. Parsley and Lettuce may also be protected in this way, although we prefer to uncover them with our other plants and give them all the light possible. Good parsley, however, may be had all winter long by merely covering the plants with a good coating of the leaves. We have just packed a layer of dry leaves about the side of our Lettuce and Violet frames, and these are covered with shingles or boards to throw off moisture. Violets in frames are looked over once a week and all decaying or diseased foliage removed and the surface scratched over where green slime appears. We depend entirely on frames for our supply of Violets, and are never without them during the most severe weather. Marie Louise is still the best of the double sorts and is a persistent winter bloomer. Lady H. Campbell, much paler in color, flowers poorly in frames and evidently needs more heat to develop its flowers. Farquhar is giving us excellent flowers and of larger size than any other sort we grow. Some growers complain of disease in this Violet, but the finest flowers we have seen this season are of this variety, and no spot was seen on the stock. Wellsiana still proves much the best of any single Violet we have growing; the stems are stiff, flowers large, dark purple in color, with a fine odor. The Czar still proves a most useful variety and blooms very freely all winter. Luxonne, while better than the much overrated California, lacks the stiff stem and deep color of Wellsiana. We have discarded California, though some growers think highly of it. As a rampant grower it exceeds any other sort we know, but its flowers lack substance and are little superior in color to our wild Violets. It seeds freely, and large numbers of young plants appeared in a perennial bed near our Violet frame all summer, proving almost as troublesome as Chickweed. Snow cannot lie on Violet frames more than a few days at a time without serious injury to the plants. All the sunlight possible must be given during the dark months, and it is useless to expect flowers in winter without it.

We have a supply of Lettuces from frames from November until outdoor stock is ready. We are now cutting plants sown at the end of August and planted in their present quarters a month ago. A batch sown a month later will give nice heads during January and February. For Lettuces we use about two feet of leaves, which are tramped firmly, and over these place a coating of manure and loam. After January a gentle hotbed of stable-manure and leaves, mixed, is prepared at intervals of a month to advance the plants more rapidly. Lettuces dislike coddling, and are ruined by a warm, close atmosphere. They will damp badly if long covered with snow, and a little ventilation should be left on in all weathers, so that any steam may escape. Tennis-ball still proves the best all-round variety. A sowing of seed is made on a greenhouse shelf in December,

Fig. 73.—Aster longifolius, Lam.—See page 504.

and the plants set out in a gentle hotbed during January. A sowing of Forcing Erfurt Cauliflower is also seasonable then. We grow these indoors in four-inch pots until rooted, when they are transferred to a frame.

We formerly stored our winter Celery in frames, but have proved that it keeps much better well protected where it is grown, and we do not now lift any. This season has been extremely mild, and we have not found it necessary to store any Cauliflowers in frames. At the end of November this vegetable is heading up nicely outdoors. We leave Brussels Sprouts out until more severe weather, when a number are carefully planted in frames, after removing all surplus leaves.

These need abundant ventilation on every favorable day, and the sashes should be thrown off entirely on mild days.

In some localities such perennials as Helianthus multiflorus plenus, Anemone Japonica, Tritoma, etc., should be lifted and stored in a frame, and a coating of leaves is sufficient protection for them. Here they are hardy, except in the more exposed locations, where we protect with partially decayed leaves. A frame is the best place to store Chrysanthemum-stools for next season's stock, and planted out in good compost they give an abundance of stout fleshy cuttings in spring. They are not injured if frozen stiff for a few days, provided they thaw out in the dark, a rule which applies to all frozen plants. Hard-wooded plants, like Azaleas, Genistas, Diosmas and Chorozemas, can be held in frames if protected, while Deutzias, Hydrangeas, Hybrid Perpetual Roses, and forcing shrubs in variety can be stowed under some of the sashes. If any of the pots are liable to be broken by frost, it is well to pack dry leaves among them. Dutch flowering bulbs placed in frames can be more readily examined, and taken indoors when needed, than if bedded in manure and straw out-of-doors.

The uses of frames are many. They provide a suitable place for a large number of plants which cannot be kept in heated structures, and in the early spring they can be utilized for raising crops of Radish, Lettuce, Beets, Carrots, Beans, Cucumbers and other vegetables, to say nothing of flowers in variety. After they are covered with snow it often happens that little attention is given them until spring, and, of course, it is useless to expect any returns when they are so neglected. No watering should be done except on the mornings of clear, bright days, or injury from damp will follow. Ventilation on every favorable opportunity, all possible light, and attention to covering materials are important and necessary during winter for good returns.

Taunton, Mass. *W. N. Craig.*

Sternbergia macrantha.

THIS interesting plant flowered with me for the first time in late November, or several weeks later than its normal season in European gardens. The species was collected by Mr. Whittall in 1893 and introduced to cultivation the next year. The original bulbs were some unknown specimens brought in by his collectors, and he was pleasantly surprised when they first flowered, unplanted in an odd corner. Like the Colchicums, this Sternbergia flowers in the fall and the leaves appear in late winter. The flowers are large and of a lighter yellow than those of the better-known S. lutea, and altogether, from its shorter scapes and absence of foliage at the time of bloom, it can scarcely be considered as desirable a general garden plant. It is, however, a novel and charming addition to the garden at a time when cheerful flowers are not too plentiful. Under what conditions it will best prosper I have not yet satisfied myself, after growing plants in different locations. It is probable, however, that warm, sunny places inclined to dryness in summer would suit this species, as they do S. lutea. The "Winter Daffodil" seems to be a capricious plant if not properly located, but a most reliable and indispensable one if properly placed, and grown in fair-sized clumps. Bulbs increase with fair rapidity.

Elizabeth, N. J. *J. N. Gerard.*

Correspondence.

Early California Oranges.

To the Editor of Garden and Forest:

Sir,—The first shipment of California oranges this year was sent to Chicago October 19th. They were described as "Australian Seedlings" and were grown in the Cahuenga valley, near Los Angeles. It has since been ascertained that they were Mediterranean Sweets and, so far as they purported to be oranges of the crop of 1896-7, were a misrepresentation, as they were oranges of last season which had remained on the trees through the summer. The car was consigned, and it is said netted a loss.

The first shipment from the Redlands district, which is among the earliest of this season's crop, consisted of two car-loads forwarded to New York City November 17th. The first car-load last year went forward November 30th. These oranges were sold at $2.75 a box, free on board, and thus netted the growers $2 00 a box, a good price, although not high enough, in my opinion, to warrant sending green fruit to market. Since November 17th several car-loads of Navels have been forwarded, and one firm alone is now sending one car-load every day. The press of California is unanimous in condemning these early shipments. Oranges which have hung upon the trees through the summer are not fair representatives of California fruit. Much of their juice has evaporated through the skin, and the result is a flabby, tasteless product. The early shipments of this season's crop are of green fruit, and it is difficult to understand why anybody should want to eat a green orange, which is no more pleasing in taste than a green apple or a half-ripe peach. Certainly those who buy and eat these oranges must form a poor opinion of California oranges.

I have been riding among the Redlands Orange groves every day for the past three months. October 19th, when the first shipment went forward, an orange here and there among the trees of these groves was just beginning to show tinges of yellow, in little spots about as big as a twenty-five cent piece. To-day, in the locations where oranges ripen the earliest, much of the fruit is still perfectly green; some of it is half-yellow, and some a pale, sickly, lemon color. Here and there a tree ripens its fruit earlier than the others, and this early fruit is culled from the whole orchard. On some trees all shades, from deep green to a pale yellow, are seen. Two months from now this fancy fruit, if left on the trees, would have a bright reddish yellow color, burnished like bronze, and the sour, insipid, unwholesome juice which it now contains would be ripened into nectar. Not the least unfortunate thing about these early shipments is that they diminish, by their volume, the amount of fancy fruit which might be sent later to establish a reputation for the California product in the markets of the east.

Experience has shown that the portion of this early fruit which reaches the market between Thanksgiving and New Year's sells usually at satisfactory prices. After the first of January there is a lull in the demand for California oranges until the first of February or later. And those shipments which have reached the eastern markets just too late for the holiday trade have invariably netted losses. This shows that consumers buy these oranges for holiday decorations, and not because they consider them fit to eat, and the fact is that no California oranges are fit to eat before the first of February. So long as growers can command two dollars a box, net, for this early fruit they will doubtless continue to sell it, regardless of the ultimate effect upon the reputation of their product. This is a short-sighted policy, especially as the best of these Navels netted the growers last year $1.75 a box as an average for the season. It seems, to outsiders, hardly worth while to impair the strength of the later demand for a gain of twenty-five cents a box on a few early car-loads. Furthermore, it is understood in California that the Mexican and Jamaica oranges now in the eastern markets are far superior to the unripe California fruit, and the latter must be sold, if at all, upon the reputation of the Navel orange, which reputation these particular specimens tend to injure. The newspapers of California are justified in discouraging these shipments and in giving the fullest possible publicity to the facts in the case.

Redlands, Calif. *William M. Tisdale.*

Meetings of Societies.

Vermont Horticultural Meeting.

THE first important horticultural meeting ever held in this state met at Burlington on December 3d, when the Vermont State Horticultural Society was permanently organized, with a large membership. Mr. T. L. Kinney, the largest apple grower in Vermont, was made President, and Professor F. A. Waugh, of Burlington, was elected Secretary.

Mr. Charles A. Hinsdill, speaking on "The Farmer's Fruit Garden," said that few farmers in southern Vermont supply their own families with fruit. They even buy berries to can, which are frequently shipped up from the New York market. The few who have undertaken small-fruit culture have thus found the local markets exceptionally good. There are numbers of summer visitors from the city in the vicinity during the fruit season who consume quantities of berries which now come mostly from the city markets.

Mr. L. M. Macomber, in speaking on Plum-culture in Vermont, said that the hardiest varieties of the Domestica class may be depended on for a full crop of plums about once in three years, and a light crop one of the two intervening years. He recommends the improved native Plums, especially those belonging to the Americana group. Of these he has grown numerous seedlings in addition to standard varieties. The Americana Plums bear a full crop practically every year if proper cross-pollination is assured, and Mr. Macomber thinks that the best of them, such as De Soto and Wolf, are equal to Lombard in quality. Pottawattomie, of the Chickasaw group,

is superior in quality, and has only the fault of bursting its skin when ripe. The Chickasaws, in general, are hardy in Vermont, though not quite as hardy or prolific as the Americana group. Marianna is a pretty plum, but does not bear well. Some of the Japanese Plums are hardy enough for Vermont, but they have not been sufficiently tested.

Mr. W. A. Orton, of the Vermont Experiment Station, said that in making the Bordeaux mixture the copper sulphate can be much more rapidly dissolved by hanging it in a sack just touching the surface of the water. This is because the resulting solution is much heavier than the pure water, and sinks rapidly to the bottom. If the copper sulphate is placed in the bottom of the vessel, the lower part of the solution soon becomes saturated and no more copper sulphate is dissolved. The lime and the copper sulphate should be made up separately and each one diluted with one-half the total water required. Then the copper sulphate should always be poured into the lime solution and never the reverse; for, if an excess of the copper sulphate is present at any time during the mixing, the durability of the mixture is disastrously affected. Bordeaux mixture made in this way will stand much longer without settling than when some other order of procedure is followed.

Mr. F. H. Horsford, in discussing "The Nurseryman's Responsibility," said that the commercial grower should furnish good, strong healthy stock, true to name and in good condition; but his responsibility is then at an end. There have been many frauds perpetrated upon the farmers by the tree agents, but for the most part the circumstances make it impossible to fix the responsibility. The planter handles his trees carelessly, paying small attention to labels. The orchard is then neglected, trees are broken down by cattle or storms, and may come up from the roots, so that by the time the trees begin to bear it is quite impossible to discover what the varieties were originally supposed to be. Some of these risks fall upon the nurseryman, who, in self-protection, must ask a higher price for his goods.

Professor W. M. Munson presented "Some Problems of Experimental Horticulture," saying that practical horticulturists and experiment station workers should frankly understand among themselves what are the most promising lines of investigation. The common tendency to press the stations for immediate and practical results is wrong. As examples for legitimate investigation he instanced the influences of stock on scion, the conditions of pollination, hybrid characters, subjects on which it is desirable to make positive generalizations, but on which our observations are still too few and inaccurate to enable us to generalize at all. Then the whole field of plant-breeding teems with problems. There is a fine opening for experimental enterprise in the acclimatization of exotic fruits and the amelioration of native ones. De Candolle wrote in the *Origin of Cultivated Plants* that there were only two native plants in cultivation in America, one being the Artichoke. Since that time we have brought into common cultivation the Blackberries, Raspberries, Gooseberries, Strawberries, Plums, Persimmons, Grapes and dozens of others. Yet we have made only a beginning in this direction.

Recent Publications.

An Illustrated Flora of the Northern United States, Canada and the British Possessions, from Newfoundland to the Parallel of the Southern Boundary of Virginia, and from the Atlantic Ocean westward to the 102d Meridian. By Nathaniel Lord Britton, Ph. D., and Hon. Addison Brown. The descriptive text, chiefly prepared by Professor Britton, with the assistance of specialists in several groups; the figures also drawn under his supervision. In three volumes. Vol. I., Ophioglossaceæ to Aizoaceæ. New York: Charles Scribner's Sons. 1896.

In few regions of the world are the students of systematic botany better provided with books for the study of the plants around them than in our northern states. To the list of our many excellent manuals and Floras is now added a treatise differing so much in plan from any of its predecessors that its publication cannot fail to mark an epoch in our botanical history. It aims to present the latest views of classification and nomenclature as applied to our plants, together with complete illustration of every species described. The magnitude of the undertaking will be appreciated when it is considered that 4,000 species are to be thus treated, the present volume including about one-third of this number.

The advantage of supplementing botanical descriptions with figures placed in juxtaposition is so obvious that its adoption was one of the earliest devices of phytography, being the method of Brunfels, Fuchs and other fathers of the science. Their figures, though to-day chiefly studied in relation to the history of wood-engraving, are no less interesting in connection with the development of botanical illustration. In modern times the use of the more elaborate plate separated from the text has in great measure superseded that of the woodcut, and complete illustration of a Flora by the latter method has been rarely attempted on an extensive scale. The most notable example of its employment is, perhaps, Bentham's *Handbook of the British Flora*, in which every description is accompanied by an admirable figure from the experienced hand of Fitch. This work has so greatly aided the popular study of plants in England that the desire for a work on the same plan for the older portion of our own country has been often expressed. This now, thanks to the munificence of Judge Brown and the energy of Dr. Britton and his coadjutors, is fulfilled.

The difficulties of such an undertaking are hardly realized by those without experience in this kind of work. The preparation of adequate figures on the small scale necessitated, though made easier by the use of modern photographic processes, is still one of the hardest tasks of botanical draughtsmanship. To be satisfactory, such figures must seize on the most essential characters of the subject, presenting them simply, clearly and properly differentiated from those of its congeners. The analyses should be most judicially selected, for much must be omitted that would be desirable if space allowed. The author of the text also has many obstacles to contend against. The mere typographical exigencies that force him to resort to a Procrustean method of fitting his descriptions to the page, depriving him of the freedom to expand here or curtail there, must at times seriously interfere with the relative proportion desirable in the component parts of his work.

That these and many other difficulties have, in the main, been overcome with so much success in the work before us is cause for congratulation. The immense number of species dealt with precluded the possibility of the figures being all drawn by the same hand. As a result their value is unequal; this is evident at a glance. Actual use in the hands of students must decide upon their trustworthiness. In the mean time it is safe to commend many of the illustrations, especially those in the families of Grasses and Sedges, where the subjects lend themselves readily to compressed treatment. Less satisfactory, it seems to us, are the figures of the Conifers and Orchids, and the Oaks, in many cases, seem drawn from unrepresentative specimens.

In the text we have a presentation of the latest phases of classification and nomenclature. Whatever difference of opinion may be held respecting the latter, few botanists will fail to welcome the adoption of the Engler system of classification. It is a pleasure to see our plants marshaled under its guidance. In regard to the nomenclature adopted, no such concurrence of opinion can be expected at the present time, and even the advocates of the new school can hardly claim that the application of the principles they uphold has yet reached perfection. In that portion of the work dealing with our specialty, for instance, we note one or two slips in this regard. The name Taxus minor cannot surely supplant Taxus Canadensis, Marshall, and Picea rubra will hardly stand if the rule "once a synonym, always a synonym," is to be enforced. It may also be suspected that the figures of P. rubra and P. Mariana have been accidentally transposed. At any rate, to our thinking, they would be more characteristic if changed about.

In general appearance the volume is extremely attractive. In every detail of mechanical execution it shows a good taste and sound judgment that reflect great credit on all concerned in its production. As the text and illustra-

tions of the remaining two volumes are already completed, their publication may be expected within a time reasonably required for their progress through the press. Their appearance will be impatiently awaited.

Notes.

According to *The Gardeners' Chronicle*, Harrison's Yellow Rose has been blooming in November. This is said to be a rare occurrence in England, and a second flowering of these Roses is certainly a rare event here.

At the Thanksgiving dinner of the American Society at the Hotel Cecil, in London, a feature of the banquet was an enormous pumpkin, weighing 175 pounds, sent to London by Captain Kroman, of Schoharie County, New York.

In this warm winter weather many shrubs are cheated into showing their flowers as if it were spring. In this latitude the flowers of Jasminum nudiflorum, which appear very early in spring, are usually caught by the frosts and rarely have their long wands covered with bright yellow blossoms as they do farther south. The plant is hardy here, however, and grows vigorously in Morningside Park, and many of the bushes are now quite full of bloom. In sheltered places Japan Quinces are also flowering.

Professor McDougal gives some very good reasons in the current number of Appleton's *Popular Science Monthly* for the establishment of a botanical garden in the West Indies, so that tropical plants could be studied without going to Buitenzorg or some other garden on the other side of the world. A laboratory and garden in the West Indies could be reached from any important city in our country in four or five days, and it would be much more accessible for the European botanist even than are those established among the antipodes. Such a garden would be of direct benefit to a great number of working botanists in America and furnish investigators and graduate students of this country with unequaled facilities for biological research.

We hear occasional criticisms of the California Violet by commercial growers, but, after all, there is something about a single Violet that is most attractive. We lately received a box of these flowers from Mr. A. Herrington, gardener to H. McK. Twombley, Esq., and they certainly left nothing to be desired in fragrance, or form or color. The flowers are bold, they are poised on long strong stems, they keep well and are wonderfully rich in color and delightfully odorous. Mr. Herrington writes that he expects to have these Violets all winter. The plants from which the flowers were gathered were set out in June and received open-field culture. They were kept to single crowns, and were lifted into the benches in September. They have become perfect rosettes with abundant foliage, each plant nearly a foot in diameter. We can think of nothing more satisfactory in the shape of a Violet than these flowers.

A thoroughly useful Farmers' Bulletin of about twenty pages, just issued by the United States Department of Agriculture, is entitled *Washed Soils. How to Prevent and Reclaim Them.* Along the banks of the Ohio and in many portions of the south hundreds of fields have been washed and furrowed beyond the possibility of profitable cultivation. How the destruction of forests has caused these gullies, how to prevent them, and how by cultivation, reforesting and covering up the ground with grass this evil can be checked and cured is plainly set forth in these pages. The illustrations are not artistic, but they are helpful, and the methods of constructing hillside ditches and terraces, the best preparation for forests, with approved methods of planting and caring for them, are all plainly set forth. The statements in this little tract are so truthful, and the deductions so logical and convincing, that every landowner who is not already familiar with them ought to read and consider them.

The English papers are giving a good deal of attention to American apples since these have become such an important feature of the English fruit market. *The Gardeners' Magazine*, in describing the auction sales, which are held three times a week at Liverpool, says that a single auctioneer sometimes sells more than 15,000 barrels a day, and as there are half a dozen salesmen, who each takes a turn of forty minutes, it is plain that a great deal of fruit is disposed of in a day. Sometimes the sales are not completed until midnight. Buyers are obliged to take twenty barrels at least on every accepted bid, with the option of as many of a given brand as are desired. They are sold by samples of two barrels from every lot of twenty, one of which is opened on the face end and the other turned out in baskets, so that any dishonesty in packing can be seen. Barrels which are called "slack"—those in which the fruit rattles when it is shaken—need not be taken by the buyer, as they bring from fifty cents to a dollar below the ruling prices. A correspondent of *The Gardeners' Chronicle* writes that American shippers excel in grading and packing their fruit. He says that out of thousands of barrels of one variety of apples every fruit looks as if it had been run into the same mold, and this careful sizing does as much to sell the fruit as the finish in color and clearness of skin, in which particulars our fruit is so much superior to that grown in the climate of England. That the sale of the British fruit could be secured by appealing to British patriotism has proved to be a delusion, and the Merchandise Marks Act, which compels all American apples to be labeled as such, has only helped to advertise them.

So light was the crop of Pecan nuts in Texas and Louisiana that no new ones are in market. Last year's product, held over in ice-houses, sells at fifteen cents a pound, retail. Hickory nuts are also scarce, the crop in New Jersey, Pennsylvania, Connecticut and New York having failed. Ohio has furnished the main supplies for our market; new nuts sell for fifteen cents, and those from last year for ten cents, a quart. Butternuts, too, are far from plentiful, a few barrels only having come from Greene County, of this state. These sell at eight cents a quart. There has been a fair crop of black walnuts, which bring the same price as butternuts. The first almonds from France reached this country about the middle of November, and the choice kind known as Princess Paper-shell sell for twenty-five cents a pound. A similar almond from California, of fine quality and somewhat larger, has been here since early in November, and brings five cents a pound less than the favorite French almond. The thicker-shelled Tarragona almond, from Spain, has more recently come, and sells for fifteen cents. The crop of English walnuts is very large, and the nuts are of excellent quality this year. The first Grenoble walnuts were in market just before Thanksgiving at fifteen cents a pound. The Brazil nuts, which begin to come in spring, are of comparatively poor quality this year, due, it is said, to injury from late rains while being transported in open canoes to the seaport. These sell for twelve cents a pound. The first new filberts came from Sicily and Naples, and from Barcelona, a fortnight ago, and bring fifteen cents a pound, while English filberts, or cob nuts, in their husks, sell for forty cents. The Chinese Lychee nuts, so-called, are thirty cents a pound. No new Paradise or Caryocar nuts have arrived this year, though some from other years are still seen in the retail shops.

An interesting bulletin prepared by Mr. L. F. Kinney, Horticulturist of the Rhode Island Experiment Station, treats of Spinach with a description of the most approved methods of culture at the present day, the best way to irrigate, the protection of plants against mildews and leaf-miners and various other interesting points. In the matter of classification, four types of true Spinach which have originated from the natural species, Spinacea oleracea, are considered. The first of these is the Norfolk or Bloomsdale variety, which makes a vase-formed, thick-leaved plant, with leaves supported by stalks instead of resting on the ground. This type, which appears under half a dozen different names, is not popular among the large growers in Rhode Island because it goes to seed early, and yet it is unsurpassed in quality when harvested at the right time. The Round-leaved Spinach is the second type, and it makes a compact round plant with dark green, slow-growing leaves formed close to the ground. The third type is the Thick-leaved Spinach, which has the ends of the leaves pointed. It grows to a large size very rapidly. The Prickly-seed Spinach has leaves with long, slender stalks and narrow blades, and is not planted in the north as much as it deserves. The so-called New Zealand Spinach is botanically Tetragonia expansa, which, when properly cooked, makes a good substitute for Spinach, and can be grown during the hot summer months when it is impracticable to grow the true Spinach. The Mountain Spinach, or Garden Orache, is botanically Atriplex Hortensis, and none of its forms have much to recommend it. Spinach has been cultivated for a thousand years, but it was not grown in European gardens until the fifteenth or sixteenth century, and the greatest progress in its cultivation has been made within the last fifty years. The bulletin is numbered 41, and contains much interesting historical and cultural matter.